

What is claimed is:

1. A data stream generation apparatus for sequentially coupling predetermined header bits of sequentially input data to a tail bit side of previously  
5 input data and sequentially outputting data having a predetermined data length from said header bit side of said coupled data,  
said data stream apparatus comprising:  
a data outputting means for outputting said  
10 predetermined data length's worth of data from said header bit side of the not yet output data and outputting data remaining after the output as feedback data when the data length of said coupled data which has not been output reaches said predetermined data length and for  
15 outputting the not yet output data as said feedback data when the data length of said not yet output data does not reach said predetermined data length;  
a data adding means for generating adjustment data having a data length of a difference between the  
20 data length of said feedback data and a data length of a whole multiple of a predetermined unit data length when said input data is the predetermined data and adding the same to said tail bit side of the feedback data; and  
a data coupling means for coupling said header  
25 bit of said input data to said tail bit side of said

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feedback data and supplying the coupled data as said not yet output data to said data outputting means.

2. A data stream generation apparatus as set forth in claim 1, wherein

5           said apparatus further comprises a data length processing means for cumulatively adding the data length of said input data based on the input data length information sequentially input corresponding to said input data, subtracting said predetermined data length  
10 from the cumulative data length when the cumulative data length reaches said predetermined data length, and adding the data length of said adjustment data to the cumulative data length when said input data is control data; and

          said data output unit outputs the data of said  
15 predetermined data length when the cumulative data length of said data length processing means reaches said predetermined data length, while outputs said not yet output data as said feedback data when it does not reach said predetermined data length.

20           3. A data stream generation apparatus as set forth in claim 2, wherein said data adding means includes

          an adjustment data length setting means for setting an adjustment data length in accordance with the cumulative data length of said data length processing  
25 means when said input data is predetermined data,

an adjustment data generating means for  
generating said adjustment data in accordance with said  
set adjustment data length, and

an adding means for adding said generated  
5 adjustment data to said tail bit side of said feedback  
data, and

wherein data length processing means adds said  
set adjustment data length to said cumulative data length  
when said input data is predetermined data.

10 4. A data stream generation apparatus as set forth  
in claim 3, wherein said adjustment data length setting  
means sets said adjustment data length in accordance with  
a difference between a quotient obtained by dividing the  
cumulative data length of said data length processing  
15 means by said unit data length and said unit data length.

5. A data stream generation apparatus as set forth  
in claim 3, wherein said adjustment data length setting  
means inverts bit values of lower significant data of a  
predetermined number of bits from the least significant  
20 bit in the binary value of the cumulative data length of  
said data length processing means and sets said  
adjustment data length in accordance with data obtained  
by adding a predetermined value to the bit inverted lower  
significant data.

25 6. A data stream generation apparatus as set forth

in claim 3, wherein said adjustment data generating means selects one data from a plurality of predetermined data in accordance with said set adjustment data length and generates adjustment data in accordance with said

5 selected data.

7. A data stream generation apparatus as set forth in claim 3, wherein said data generating means generates data in accordance with each bit value in the binary value of said set adjustment data length for each bit,

10 selects one data from a plurality of data generated by coupling the generated data for each bit in a predetermined sequence in accordance with the bit value of at least one predetermined bit among the bits, and generates adjustment data in accordance with the selected  
15 data.

8. A data stream generation apparatus as set forth in claim 2, further comprising:

a data selecting means for selecting the sequentially input variable length data or said control  
20 data in accordance with a supplied selection signal and supplying said selected input data to said data coupling means; and

a data length selecting means for selecting input data length information corresponding to said  
25 variable length data or said control data and supplying

said selected input data length information to said data length processing means.

9. A data stream generation apparatus as set forth in claim 8, further comprising:

5 a variable length data coupling means for coupling a plurality of variable length data each having variable length and supplying the same to said data selecting means; and

10 a data length generating means for generating input data length information of said coupled variable length data based on the input data length information corresponding to the plurality of variable length data and supplying the same to said data length selecting means.

15 10. A data stream generation apparatus for sequentially coupling predetermined header bits of sequentially input data to a tail bit side of previously input data and sequentially outputting data having a predetermined data length from said header bit side of  
20 said coupled data,

said data stream generation apparatus comprising:

a data outputting means for outputting said predetermined data length's worth of the data from said  
25 header bit side of the not yet output data and outputting

data remaining after the output as feedback data when the data length of said coupled data which has not been output reaches said predetermined data length and outputting the not yet output data as said feedback data

5 when the data length of said not yet output data does not reach said predetermined data length;

a data adding means for generating adjustment data having a data length of a difference between a sum of data lengths of said input data and said feedback data

10 and the data length of a whole multiple of a predetermined unit data length and adding the same to said header bit side of the input predetermined data;

a data selecting means for selecting predetermined data with said adjustment data added

15 thereto or other input data in accordance with a supplied selection signal; and

a data coupling means for coupling said header bit of said selected input data to said tail bit side of said feedback data and supplying the coupled data as said

20 not yet output data to said data outputting means.

11. A data stream generation apparatus as set forth in claim 10, wherein

said apparatus comprises a data length processing means for cumulatively adding data lengths of

25 said input data based on said input data length

information sequentially input corresponding to said input data and subtracting said predetermined data length from said cumulative data length when the cumulative data length reaches said predetermined data length, and

5                   said data output unit outputs the data of said predetermined data length when the cumulative data length of said data length processing means reaches said predetermined data length, while outputs said not yet output data as said feedback data when it does not reach  
10                   said predetermined data length.

12. A data stream generation apparatus as set forth in claim 11, wherein said data adding means includes

an adjustment data length setting means for setting an adjustment data length in accordance with the  
15                   sum of the cumulative data length of said data length processing means and said input data length,

an adjustment data generating means for generating said adjustment data in accordance with said set adjustment data length, and

20                   an adding means for adding said generated adjustment data to said header bit side of said control data.

13. A data stream generation apparatus as set forth in claim 12, wherein said adjustment data length setting  
25                   means sets said adjustment data length in accordance with

a difference between a quotient obtained by dividing the cumulative data length of said data length processing means by said unit data length and said unit data length.

14. A data stream generation apparatus as set forth  
5 in claim 12, wherein said adjustment data length setting means inverts bit values of lower significant data of a predetermined number of bits from the least significant bit in the binary value of the cumulative data length of said data length processing means and sets said  
10 adjustment data length in accordance with data obtained by adding a predetermined value to the bit inverted lower significant data.

15. A data stream generation apparatus as set forth  
in claim 12, wherein said adjustment data generating  
15 means selects one data from a plurality of predetermined data in accordance with said set adjustment data length and generates adjustment data in accordance with said selected data.

16. A data stream generation apparatus as set forth  
20 in claim 12, wherein said data generating means generates data in accordance with each bit value in the binary value of said set adjustment data length for each bit, selects one data from a plurality of data generated by coupling the generated data for each bit in a  
25 predetermined sequence in accordance with the bit value



of at least one predetermined bit among the bits, and generates adjustment data in accordance with the selected data.

17. A data stream generation apparatus as set forth  
5 in claim 12, wherein said data selecting means

selects sequentially input variable length data or said control data in accordance with said selection signal and supplying said selected input data to said data coupling means, and

10 has a data length selecting means for selecting input data length information corresponding to said variable length data or control data to which said adjustment data has been added and supplying said selected input data length information to said data  
15 length processing means.

18. A data stream generation apparatus as set forth in claim 17, further comprising:

a variable length data coupling means for coupling a plurality of variable length data each having  
20 variable length and supplying the same to said data selecting means;

a first data length generating means for generating input data length information of said coupled variable length data based on the input data length  
25 information corresponding to the plurality of variable

length data and supplying the same to said data length selecting means; and

a second data length generating means for generating input data length information of control data to which said adjustment data has been added based on the set adjustment data length and supplying the same to said data length selecting means.

19. A data stream generation method for sequentially coupling predetermined header bits of sequentially input data to the tail bit side of previously input data and sequentially outputting data of the predetermined data length from said header bit side of said coupled data,

said data stream generation method repeating the following steps:

a data outputting step of outputting said predetermined data length's worth of data from said header bit side of the not yet output data and generating feedback data in accordance with the data remaining after the output when the data length of the said coupled data which has not been output reaches said predetermined data length, or generating said feedback data in accordance with the not yet output data when the data length of said not yet output data does not reach said predetermined data length;

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a data adding step of generating adjustment  
data having the data length of the difference between the  
data length of said feedback data and the data length of  
a whole multiple of a predetermined unit data length when  
5 said input data is predetermined data and adding the same  
to said tail bit side of the feedback data; and

a data coupling step of coupling said header  
bit of said input data to said tail bit side of said  
feedback data and generating the not yet output data of  
10 said data output step.

20. A data stream generation method for  
sequentially coupling predetermined header bits of  
sequentially input data to the tail bit side of  
previously input data and sequentially outputting data of  
15 a predetermined data length from said header bit side of  
said coupled data,

said data stream generation method repeating  
the following steps:

a data outputting step of outputting said  
20 predetermined data length's worth of the data from said  
header bit side of the not yet output data and generating  
feedback data in accordance with the data remaining after  
the output when the data length of said coupled data  
which has not been output reaches said predetermined data  
25 length and generating said feedback data in accordance

with the not yet output data when the data length of said not yet output data does not reach said predetermined data length; and

a data coupling step of generating adjustment data having a data length of a difference between a sum of data lengths of said input data and said feedback data and the data length of a whole multiple of a predetermined unit data length, adding the same to said header bit side of the input predetermined data, selecting predetermined data with said adjustment data added thereto or sequentially input variable length data in accordance with an input selection signal, and coupling said header bit of the selected data to said tail bit side of said feedback data.

21. A variable length encoded data stream generation apparatus for sequentially generating variable length encoded data or predetermined control data, sequentially coupling predetermined header bits of the generated data to the tail bit side of previously generated data, and sequentially outputting data of a predetermined data length from said header bit side of said coupled data,

said variable length encoded data stream generation apparatus comprising:

a variable length encoding means for

sequentially generating variable length encoded data obtained by compressing and encoding intended data or intended control data;

5 a data outputting means for outputting said predetermined data length's worth of data from said header bit side of the not yet output data and outputting data remaining after the output as feedback data when the data length of the said coupled data which has not been output reaches said predetermined data length, while  
10 outputting the not yet output data as said feedback data when the data length of said not yet output data does not reach said predetermined data length;

15 a data adding means for generating adjustment data having a data length of a difference between the data length of said feedback data and the data length of a whole multiple of a predetermined unit data length when the generated data of said variable length encoding means is said control data and adding the same to said tail bit side of the feedback data; and

20 a data coupling means for coupling said header bit of the generated data of said variable length encoding means to said tail bit side of said feedback data and supplying the coupled data as said not yet output data to said data outputting means.

25 22. A variable length encoded data stream

generation apparatus for sequentially generating variable  
length encoded data or predetermined control data,  
sequentially coupling predetermined header bits of the  
generated data to the tail bit side of the previously  
5 generated data, and sequentially outputting data of the  
predetermined data length from said header bit side of  
said coupled data,

said variable length encoded data stream  
generation apparatus comprising:

10 a variable length encoding means for  
sequentially generating variable length encoded data  
obtained by compressing and encoding intended data or  
intended control data and outputting a selection signal  
in accordance with the generated data;

15 a data outputting means for outputting said  
predetermined data length's worth of data from said  
header bit side of the not yet output data and outputting  
data remaining after the output as feedback data when the  
data length of the said coupled data which has not been  
20 output reaches said predetermined data length, while  
outputting the not yet output data as said feedback data  
when the data length of said not yet output data does not  
reach said predetermined data length;

a data adding means for generating adjustment  
25 data having a data length of a difference between a sum

of data lengths of said input data and said feedback data and the data length of a whole multiple of a predetermined unit data length and adding the same to said header bit side of said control data;

5           a data selecting means for selecting control data with said adjustment data added thereto or said variable length encoded data in accordance with said selection signal; and

10           a data coupling means for coupling said header bit of the selected data of said data selecting means to said tail bit side of said feedback data and supplying the coupled data as said not yet output data to said data outputting means.

23. A variable length encoded data stream  
15 generation method for sequentially generating variable length encoded data or predetermined control data, sequentially coupling the predetermined header bits of the generated data to the tail bit side of the previously generated data, and sequentially outputting data of a  
20 predetermined data length from said header bit side of said coupled data,

          said variable length encoded data stream generation method repeating the following steps:

          a variable length encoding step of sequentially  
25 generating variable length encoded data obtained by

variable length encoding the intended data or intended control data;

a data outputting step of outputting said predetermined data length's worth of data from said header bit side of the not yet output data and generating feedback data in accordance with the data remaining after the output when the data length of the said coupled data which has not been output reaches said predetermined data length and generating said feedback data in accordance with the not yet output data when the data length of said not yet output data does not reach said predetermined data length;

a data adding step of generating adjustment data having a data length of a difference between the data length of said feedback data and the data length of a whole multiple of a predetermined unit data length when the generated data in said variable length encoding step is said control data and adding the same to said tail bit side of the feedback data; and

a data coupling step of coupling said header bit of said generated data to said tail bit side of said feedback data and generating the not yet output data of said data output step.

24. A variable length encoded data stream generation method for sequentially generating variable



length encoded data or predetermined control data,  
sequentially coupling predetermined header bits of the  
generated data to the tail bit side of the previously  
generated data, and sequentially outputting said

5 'predetermined data length' worth of data from said header  
bit side of said coupled data,

said variable length encoded data stream  
generation method repeating the following steps:

10 a variable length encoding step of sequentially  
generating variable length encoded data obtained by  
variable length encoding the intended data or intended  
control data and generating a selection signal in  
accordance with the generated data;

15 a data outputting step of outputting said  
predetermined data length's worth of data from said  
header bit side of the not yet output data and generating  
feedback data in accordance with the data remaining after  
output when the data length of said coupled data which  
has not been output reaches said predetermined data  
20 length and generating said feedback data in accordance  
with the not yet output data when the data length of said  
not yet output data does not reach said predetermined  
data length; and

a data coupling step of generating adjustment  
25 data having a data length of the difference between the

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sum of data lengths of said input data and said feedback data and the data length of a whole multiple of a predetermined unit data length and adding the same to said header bit side of said control data, selecting the control data with said adjustment data added thereto or sequentially input variable length data in accordance with said selection signal, and coupling said header bit of the selected data to said tail bit side of said feedback data.

25. A camera system for sequentially generating data obtained by variable length encoding image data or predetermined control data, sequentially coupling predetermined header bits of the generated data to the tail bit side of previously generated data, and

sequentially outputting data of a predetermined data length from said header bit side of said coupled data,

said camera system comprising:

an imaging means for imaging a desired image and generating image data;

a variable length encoding means for sequentially generating variable length encoded data obtained by variable length encoding said generated image data or desired control data;

a data outputting means for outputting said predetermined data length's worth of data as output image

data from said header bit side of the not yet output data  
and outputting data remaining after the output as  
feedback data when the data length of the said coupled  
data which has not been output reaches said predetermined  
5 data length, while outputting the not yet output data as  
said feedback data when the data length of said not yet  
output data does not reach said predetermined data  
length;

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10 a data adding means for generating adjustment  
data having a data length of the difference between the  
data length of said feedback data and the data length of  
a whole multiple of a predetermined unit data length and  
adding the same to said tail bit side of the feedback  
data when the generated data of said variable length  
15 encoding means is said control data;

a data coupling means for coupling said header  
bit of the generated data of said variable length  
encoding means to said tail bit side of said feedback  
data and supplying the coupled data as said not yet  
20 output data to said data outputting means; and

a processing means for performing predetermined  
processing with respect to the stream of said output  
image data.

26. A camera system for sequentially generating  
25 data obtained by variable length encoding image data or

predetermined control data, sequentially coupling  
predetermined header bits of the generated data to the  
tail bit side of previously generated data, and  
sequentially outputting data of a predetermined data

5 length from said header bit side of said coupled data,

said camera system comprising:

an imaging means for imaging the desired image  
and generating image data;

10 a variable length encoding means for  
sequentially generating variable length encoded data  
obtained by variable length encoding said generated image  
data or intended control data and outputting a selection  
signal in accordance with the generated data;

15 a data outputting means for outputting said  
predetermined data length's worth of data as output image  
data from said header bit side of the not yet output data  
and outputting data remaining after the output as  
feedback data when the data length of said coupled data  
which has not been output reaches said predetermined data  
20 length, while outputting the not yet output data as said  
feedback data when the data length of said not yet output  
data does not reach said predetermined data length;

a data adding means for generating adjustment  
data having a data length of the difference between the  
25 sum of data lengths of said input data and said feedback

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data and the data length of a whole multiple of a predetermined unit data length and adding the same to said header bit side of said control data;

5 a data selecting means for selecting control data with said adjustment data added thereto or said variable length encoded data in accordance with said selection signal;

10 a data coupling means for coupling said header bit of the selected data of said data selecting means to said tail bit side of said feedback data and supplying the coupled data as said not yet output data to said data outputting means; and

15 a processing means for performing predetermined processing with respect to the stream of said output image data.

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